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M. Zamer



Illinois Environmental Protection Agency

1701 First Avenue, Maywood, IL 60153

708/531-5900

DATE:

10/21/93 (update only)
~~July 20, 1993~~

Date of Inspection: June 15, 1993

TO:

Sy Levine

Last Insp. Date: March 3, 1993

FROM:

David C. Beener

Region/District: 1-122

Facility:

Hysan Corporation

I.D. #: 031 024 ADI

Address:

3000 W. 139th Street - Blue Island 60406

Contact/Title: Jack Smothers/

V.P. R&D Corporate Office

Phone: 708/376-8981

1.0 Product-Process Description

Facility is a manufacturer of aerosol can products. It packages its own aerosol products and does outside contract aerosol packaging. It runs products for industries such as cosmetic/hair care, pesticides & insecticides, household, etc. There are about 600 different aerosol product formulations which are broken down into five major classifications: water soluble base, homogeneous chlorinated solvent base, oil/water/solvent emulsion, alcohol/water and wax/water types. It runs batches from a minimum of 100 gals per batch to a maximum of 10,000 gals per product batch. Production hours are between 8-10 hours a day at 5 days a week. Various phases of production are as follows:

RAW MATERIALS HANDLING:

Dry Raw Materials & Product Concentrate - Dry raw materials packed in 55 lb bags and liquid concentrated products/raw materials in drums are received by trucks and stored directly inside the warehouse. Concentrated products are normally products from outside customers that are either diluted first or directly processed into aerosol can products.

Liquid Raw Materials & Product Concentrate in Bulk - Liquid raw materials and product concentrate in bulk are pumped directly into storage tanks located inside the mixing room of the manufacturing building. Such raw materials include methylene chloride (Aerothene MM), 1,1,1-trichloroethane (aerothene TT), paraffin oil, Isopar M (isoparaffinic solvent), etc. Product concentrate includes batch cleaner, spray baby product, country guard air freshener, etc.

1.0 Product-Process Description (continued)

Propellants - Propellants are received via tank cars and stored in the following dedicated above ground storage tanks located at the back of its manufacturing building.

HC Blend A70 (propane-isobutane) 10,000 gal capacity
HC Blend A46 (propane-isobutane) 30,000 gal capacity
(replaced with HC Blend 46BP,
propane-butane)
Propellant A (Freon 11)
Propellant 12 (Freon 12)
Carbon Dioxide
Nitrous Oxide

The above propellants are directly piped and metered into the gassing room charging equipment.

MIXING/BLENDING OPERATION:

The Mixing Room consists of various sizes of mixing, holding storage and service tanks. These tanks have been identified as follows:

Tank # Designation	Purpose	Capacity (gallons)
1	Holding (cold Blending)	5,700
2	Cold blending (w/2 stage mix blade)	10,500
3	Cold blending (w/2 stage mix blade)	5,700
4	Cold blending (w/2 stage mix blade)	5,700
5	Cold blending	1,200
6	Cold blending	1,200
7	Holding	5,000
8	Hot blending	1,200
9	Hot blending	600
10 to 16	Raw Materials	4,000-5,700
17	Cold blending	1,200
18 & 19	Cold blending	3,000
20	Empty	*
21	Batch cleaner	*
23	Paraffin oil	*
24	Spray baby product	*
26	Paraffin Oil	*
27	Isopropyl alcohol for flush glasses room	*

*Surge tanks, rectangular in shape of about 200 gal capacities.

1.0 Product-Process Description (continued)

Each of the blending and holding tanks has a fixed mounted top cover, inlet pipes directly connected to solvent storage tanks, an outlet transfer pipe, an inlet water pipe and a mixing shaft. Each has also a 2 ft manhole on top with a latch cover to permit dry materials charging and product sampling, and a 2 inch vent pipe (with flare arrestor and rain cap) which is always open directly into the atmosphere. All other tanks each have a manhole opening with a slightly smaller diameter and a 2 inch vent pipe. An individual wall mounted side draft exhaust (2 ft x 1 1/3 ft) which is ducted to two exhaust building roof fans, is provided on each tank located at the Mixing Room.

In a batch preparation, the blending and holding tanks are run dry by purging air through the tank to the surge tanks. Any liquid collected in the surge tanks are held until the next similar batch is prepared for reuse. The solvents are always first metered in the blending tank before charging the dry materials. The blending tank remains closed during the entire blending operation except during raw material charging and product sampling. A batch normally takes about 15 to 20 minutes mixing time except for the hot blending batch. Facility manufactures only one hot blended product, that is, the wax emulsion which takes about 2 hours for melting the wax (at 200°F) and mixing and an additional two hours to cool down the product. After mixing, the product is either directly transferred to the filling line or to the holding tank. About 3% of its product line requires holding the product for 48 hours for bacterial test before filling.

FILLING OPERATION:

The product from the blending or holding tank is transferred via a closed transfer pipe to the filling line service tanks. There are 2-250 gal, 1-150 gal and 2-100 gal service tanks located above the fill room to permit gravity flow. These tanks are covered and have a 2 inch vent pipe on each tank. The filler room is equipped with one ventilator with a mesh filter. A measured amount of product is filled into the cans. There are two aerosol can lines, each line is going to one gassing room.

GASSING CHARGING ROOM:

There are two gassing rooms. Room 1 is set up for the aerosol undercap charging system. The charging machine is a rotary machine equipped with multiple heads that do initial air evacuation from can, followed by propellant charging and crimping. The accurately measured propellant flows into the container under the aerosol valve cap at elevated pressure. The room has two separate exhaust systems with a total of 10,000 cfm for once-a-minute removal of air and then increases to twice-per-minute when the second exhaust system turns on. Make up air is about 5,000 cfm to provide less than 20% air exchange at 2 cu. ft/minute.

1.0 Product-Process Description (continued)

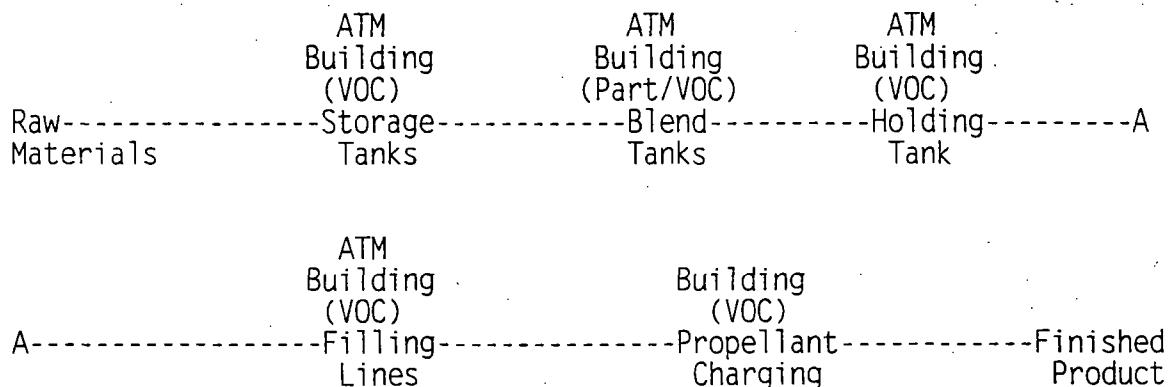
Room 2 is set up for the through-the-valve charging system. The charging machine in this room does both vacuum crimping and propellant charging. Accurately measured propellant is forced through the aerosol valve assembly and into the container at high pressure rather than charging under the aerosol cap. Room 2 is similar to room 1 except that it has a 2 stage exhaust system totalling 8,000 cfm with an air make up of 4,000 cfm.

Each charging room is monitored with four LEL monitors. (One on each side of the room used as back up unit). The monitors are set to alarm at 20% LEL concentration and to shut off automatically the aerosol line upon reaching 50% LEL. The filling room and the blending room each have one LEL monitor set to alarm at 15% LEL.

PACKAGING:

Finished can products are either directly packed in boxes or sent for additional labelling before packing.

Process Flow Diagram



2.0 Purpose of Inspection

On-site to witness emission source testing of propellant fill lines.

2.1 Compliance History

March 3, 1993 Inspection by D. Beener:

CIL is being issued for failure to comply with Special Conditions 4(a) of Permit #79020002-at least 180 days before expiration of permit (09/01/93) emissions from propellant charging/liquid filling lines shall be measured by an approved testing Agency.

June 26, 1990 Inspection by C. Mata

Facility was in violation of Special Condition #4 of Operating Permit #79020002 for not maintaining records of VOC on-site and for not submitting annual records of VOC. A CIL was cited under Section 9(b) of the Act.

2.1 Compliance History - continued

May 23, 1989 Inspection:

Inspection by C. Mata pursuant to a request by ESS. Inspection revealed this plant is emitting 90 T/Y of VOM and 45 TPY of exempt VOM. Inspection revealed compliance of Vandalex mixing with Sec. 215.301, compliance of loading operation with Sec. 215.122, exempt from Subpart QQ of the aerosol formulation mfg and exempt from Sec. 215.301 of the propellant charging operation. The operating permit application was recommended to be issued with condition on recordkeeping.

Prior to May 23, 1989 Inspection:

Region I files indicated no inspection by FOS conducted at this facility. Files indicated that a renewal operating permit for its aerosol manufacturing plant was denied on November 15, 1988 for lack of sufficient data and information to evaluate compliance. Reapplication was submitted on Dec. 15, 1988 and was again denied on Feb. 3, 1989 as Vandalex Blend will emit photochemorganic materials exceeding the 8#/hr limit and for lack of information on the mixing operation. Data and information was resubmitted on March 16, 1989. Operating Permit was issued on June 19, 1989.

2.2 Observations-Discussion Related to Inspection

(06/15/93 by D. Beener)

Author was on-site this date to observe stack testing for total hydrocarbons from aerosol packaging lines. Mr. Jack Smothers/V.P. of Research and Development was contacted and provided author with a tour of testing locations. Mr. Smothers stated that the current permit was initially rejected based upon an MTE calculation showing an annual emission rate in excess of 100 tons per year. Since the initial application the facility has installed a new Seric filling line which is microprocessor controlled to maintain tight tolerances on filling process. Both fill rooms are operated under negative pressure, ducting fugitive emissions from filling operations to roof mounted exhaust.

Testing was conducted by Almaga Corp. under the supervision of Mr. Larry Fisher/Associate Project Manager. During the final set-up of equipment, Mr. Fisher consulted with the author concerning the NO_x testing of the boiler, since this unit operates based upon demand for steam and is discontinuous. The author contacted Mr. Fred Smith/Emission Test Specialist, and following a review of the operating permit, informed the facility that there was no requirement in the special conditions to test NO_x emissions from boiler. Mr. Smothers stated that the Notification of Testing form was submitted following a previous test conducted years ago which included NO_x testing and was inadvertently included in the present test series.

2.2 Observations-Discussion Related to Inspection (continued)

VOC testing was to be performed on only Line #2 on this date, utilizing USEPA Method 25A. Testing of Line #1 was to be conducted on June 16, 1993 as this line has an emission rate range of 0-10,000 ppm for which Almaga would have to obtain an appropriate calibration gas. Mr. Fisher stated that propane would be utilized as the calibration gas and calibrated as methane.

(03/03/93 by D. Beener)

Tour and discussion of plant operation provided by Mr. Jack Smothers/VP of Research and Development and Mr. Joe Grahonya/Plant Manager. Plant was in full operation at time of unannounced inspection. Prior to tour author met with both representatives to discuss operations and request pertinent data necessary for emission calculations and verification of permit special conditions. It was indicated to author that the facility is considering the possibility of requesting a limit on hours of operation to assure facility remains below the 100 MTE limit.

Tour of facility found fill lines in operation producing stainless steel cleaner and insectant products. It was noted that the under-cup fillers had been converted to gas fill operation, there by lowering fugitive losses from the operation.

July 23, 1992 by Erlinda Nieves

Tour of the plant revealed that there were two (2) machines in operation aside from those permitted. The gassing machine was installed in early June of 1991 and the filling machine in early January this year. Mr. Grahonya further stated that the new filling machine has a higher potential operating speed, accurate fill and could achieve a 90% reduction in VOC emissions. The gasser is a replacement of the existing machine from under the cup to pressure fill. The old gasser is not taken out from the site and is being used for crimping.

It was also observed that the facility has taken out from the site six (6) underground storage tanks where solvents were formerly stored. In the present operation, solvents are either pumped directly into the mixer or stored in smaller containers.

Inspection of the mixing room showed all blending and holding tanks were covered and each draft exhaustor is working properly. Respectively, LEL monitors in the filling and blending room were also working properly.

2.2 Observations-Discussion Related to Inspection (continued)

June 26, 1990 Inspection by C. Mata

The tour of the plant was conducted by Mr. Orion McCammon. All storage tanks at the Mixing Room were observed to contain either raw materials or product concentrate.

All tanks were observed covered. A slight faint perfume odor was noticeable. Inspection at the aerosol filling and charging lines indicated Line #1 was in operation processing an insect propellant. Line #2 was in process of job change over. The two charging rooms were observed closed and appeared to have sufficient room air-exchange. The LEL monitors in each room were observed monitored from the Maintenance Dept. At the time of the inspection of the LEL monitors, all LEL monitors from the gassing rooms, mixing room and filler rooms indicated LEL of less than 5%.

Inspection revealed no records of production (to allow calculation of VOC emissions) were kept at this plant. Telephone conversation (while at this plant) with Mr. Smothers, the new V.P. of R&D at the corporate office in Des Plaines indicated that records are kept in the computer system at the corporate office. He requested a meeting with the Agency to clarify the required information/data and calendar year by which time reports are to be submitted. This meeting was scheduled for July 2, 1990.

2.3 Summary of Meetings

None held.

2.4 Telephone Call Reports

None to report.

3.0 Emission Source Identification

[Vandalex Mixing & Filling Operations]

3.01 Applicable Regulation/Effective Date

Section 218.301: Use of Organic Materials - 07/01/91.

3.02 Process Flow Diagram

See 1.0.

3.1 Emission Source Identification

[Mixing & Filling Operations Other Than Vandalex]

3.11 Applicable Regulation/Effective Date

Section 218.301: Use of Organic Materials - 07/01/91..

3.12 Process Flow Diagram

See 1.0.

3.2 Emission Source Identification
[Propellant Charging Operation]

3.21 Applicable Regulation/Effective Date

Section 218.301: Use of Organic Materials - 07/01/91.

3.22 Process Flow Diagram

See 1.0.

4.0 Permit Status

<u>Permit #</u>	<u>Source</u>	<u>Date Granted</u>	<u>Expiration Date</u>
79020002	Aerosol Packaging Plant	08/26/92	09/01/93

4.1 Standard Conditions

Compliance with applicable standard conditions.

4.2 Special Conditions

Refer to Agency files.

4.3 New Source Review

Not subject to NSR. Facility's plant manufacturing mixing area was rebuilt during 1979 due to an explosion (high pressure exhaust blew up). Emission sources such as storage tanks, aerosol fill and charging roofs were not affected by the explosion. Therefore not subject to NSR.

5.0 Fugitive Dust Program

No program is currently on file.

6.0 Opacity Observations

None made.

6.1 Visible Emission Observations

No visible emissions observed.

7.0 Emission Calculations

None to report at this time.

7.1 Part 218 Organic Material Emission Calculations and Standards

See Section 7.0.

8.0 Equipment Standards

Blending tanks to be covered to contain fugitive emissions.

9.0 NSPS

Not subject to NSPS.

10.0 NESHAP

Not a subject source.

11.0 Stack Tests

June 15, 1993 by D. Beener

Emission source testing conducted on filling Lines #1 & 2, by Almega Corporation.

Results from Almega were received in office on August 2, 1993 and indicate the following average emission rates:

Line #1: 15.1 lbs/hour

Line #2: 3.02 lbs/hour

Performing an MTE calculation based upon an 18.12 lbs/hr VOM emission rate produces an annual emission rate of 79.37 tons/yr which exempts the facility from the requirements of Section 218.946. Thus, the company is subject to Section 218.301 for use of organic material not to exceed 8.0 lbs/yr, applicable only to photochemically reactive material in the absence of an odor nuisance. Based upon information supplied by the facility, only two liquid filler compounds are photochemically reactive: 1) Vandalex Blend (42% saturates/58% toluene) and 2) Terpene Alcohol (Pine Oil). All other liquid fillers are propellants are considered non-photochemically reactive materials and not subject to the control requirements of Section 218.301. Usage of photochemically reactive compounds has been demonstrated to be in compliance with 218.301 based upon permit analysis.

March 3, 1993 Inspection by D. Beener

Testing required at least 180 days prior to expiration of permit see Section 2.1.

June 26, 1990 Inspection by C. Mata

Facility maybe required in the future to conduct stack test on the gassing rooms to determine actual propellant losses during charging. The stack test maybe required if present annual production of aerosol can using HC propellant increased by at least 10 TPY. (The expected VOC emissions from such increase may categorized this facility as a major source).

11.1 Total Annual Plant Emissions (T/Y) Various Pollutants

<u>Emission</u>	<u>1990</u>	<u>1991</u>	<u>1992</u>
Part	Nil	Nil	0.03
SO _x	Nil	Nil	0.01
NO _x	Nil	Nil	1.07
CO	Nil	0.58	0.21
VOC	90	46.85	33.79

12.0 Section 9(a) Factors

Facility is located in a remote area where the nearest residence is about a 1/2 mile southeast of them. It is bounded on the north and south by vacant properties, on the west by a cargo railroad track and medium light industrial establishment on the east. Agency files indicated no complaints brought against this facility.

13.0 Multi-Media Factors

No known multi media problem.

13.1 Chemical Safety

Not surveyed for CSCP.

14.0 Attainment/Non Attainment/Geographical Description

Located in non-attainment area for ozone and particulates.